

OFFICIAL COPY.

Dr. Theodore Thomson's Report to the Local Government Board on persistence of Enteric Fever in the Swinton and Pendlebury Urban District; and on the Sanitary Circumstances and Administration of the District.

W. H. POWER,

Assistant Medical Officer,

December 20th, 1898.

IN the spring of the present year the Board's attention was directed to a statement by the Medical Officer of Health of the Swinton and Pendlebury Urban District, in his Report on the health of Swinton and Pendlebury during 1897, that there had been unusual prevalence of enteric fever in the district in the latter part of that year. Investigation regarding recent years anterior to 1897 showed that there had been marked prevalence of enteric fever in the district in those years, also. Thereupon the Board wrote to the Urban District Council directing their attention to these facts and to the existence of unsanitary conditions in their district referred to in the Medical Officer of Health's Report for 1897, more especially in association with the old privy-midden system still in vogue in Swinton and Pendlebury. The Board requested the Urban District Council to give these matters their serious consideration, and expressed a hope that the Council would take such steps as might be necessary to substitute a proper system of excrement and refuse disposal for that in use in Swinton and Pendlebury, and also that they would do their utmost to remove all unwholesome conditions tending to foster the existence of enteric fever in the district. Correspondence ensued between the Board and the Urban District Council, from which it appeared that the latter regarded the Board as taking too unfavourable a view of the health and the sanitary circumstances of the district. I was accordingly instructed by the Board to visit Swinton and Pendlebury, and to make inquiry as to prevalence of enteric fever there, and also as to the sanitary circumstances and administration of the district. This I did on several occasions in the months of June and July, ascertaining the facts now about to be set forth.

The Urban District of Swinton and Pendlebury, some four miles to the north-west of Manchester, had, at the census of 1891, a population of 21,637, with an area of 2,196 acres. Its rateable value for the present year is £96,198; and the current rates are 2s. 8d. in the £ for the general district rate and 1s. 10d. in the £ for the poor rate. The chief industries are collieries, cotton spinning, and weaving; while there are also bleach works and breweries in the district. Geologically, Swinton and Pendlebury are on the Coal Measures; which, however, are here overlaid by a considerable amount of Drift, chiefly in the form of Glacial Sand and Gravel and of River Valley Gravel. The soil on which the dwellings in the more populous parts of the district stand is locally stated to be for the most part dry sand of uncertain depth.

The condition of the public health in Swinton and Pendlebury may be gathered from the following tables (Tables A and B), in which are shown the deaths and death rates from all causes and from certain particular causes during the ten years 1888-97; while, for purposes of comparison, like data are given for England and Wales, and also for the 33 Great Towns in Table C.

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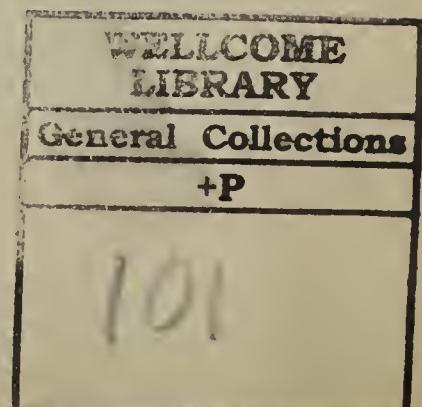


TABLE A.

SWINTON AND PENDLEBURY URBAN DISTRICT.

Years.	Number of Deaths from					Estimated Population.	Death-rate per 1,000 living from all causes.
	All Causes.	Seven principal Zymotics.	Enteric Fever.	Enteric plus "Continued" Fever.	Diarrhoea.		
1888	387	57	11	11	13	20,511	18·9
1889	397	75	6	16	13	20,880	19·0
1890	370	36	5	5	11	21,255	17·4
1891	395	87	7	7	5	21,645	18·2
1892	394	34	4	4	12	22,135	17·8
1893	426	52	8	8	26	22,615	18·8
1894	449	108	8	8	11	23,165	19·4
1895	440	85	12	12	18	23,735	18·5
1896	439	69	12	12	19	24,570	17·9
1897	452	65	12	12	23	25,230	17·9
Total	4,149	668	85	95	151	225,741	18·4

The estimates of the population of Swinton and Pendlebury during the years 1888-97 are based partly on the 1891 census returns and partly on local information derived from the rate-books. These estimated populations do not include either the Industrial Schools or the Children's Hospital, both situated within the district but mainly comprising children from without the district. Similarly, deaths in these institutions of children admitted from other districts are omitted from the Table. Deaths of persons admitted from Swinton and Pendlebury to the Monsall Fever Hospital, to the Salford Workhouse, and to the Barton-on-Irwell Workhouse, are included in the Table.

TABLE B.

	The death-rates per 1,000 living for the whole period, 1888-97, from					The Mean Population.
	All Causes.	Seven principal Zymotics.	Enteric Fever.	Enteric plus "Continued" Fever.	Diarrhoea.	
Swinton and Pendlebury Urban District ...	{ 18·38	2·96	·38	·42	·67	22,574

TABLE C.

	The death-rates per 1,000 living for the whole period, 1888-97, from				The Mean Population.
	All Causes.	Seven principal Zymotics.	"Fever."*	Diarrhoea.	
England and Wales ...	18·41	2·10	·17	·63	29,576,528
The 33 Great Towns† ...	20·13	—	·19	·86	—

* "Fever" includes enteric fever, typhus fever, and continued fever.

† During the years 1888-91 (inclusive) there are only 28 Great Towns.



From these Tables it appears that the death-rates in Swinton and Pendlebury from all causes, and from diarrhoea, are about the same as the corresponding rates in England and Wales as a whole. The death-rate, however, from the seven principal zymotic diseases is materially higher in Swinton and Pendlebury than in England and Wales; while the death-rate from enteric *plus* continued fever in the former is more than double the "fever" rate in the 33 great towns, and two-and-a-half times that of England and Wales. The undue prevalence of enteric fever in Swinton and Pendlebury, already indicated by the death-rate from this cause, is further illustrated in the following Table. This gives the number of *cases* of enteric fever notified to the Local Authority as having occurred in their district during the years 1890-97, together with the annual attack rates from this cause during that period. In a subsidiary table are added the attack rates per 1,000 persons living in certain towns in England and Wales during the five years 1893-97. The towns selected are those in which the Infectious Disease (Notification) Act, 1889, is in force; and the attack rate in each instance is based on the number of cases of enteric fever notified under that Act to the Local Authority.

TABLE D.

Showing the number of cases of enteric fever notified, and the annual attack rate from this cause per 1,000 persons, in Swinton and Pendlebury during the period 1890-97; as also the annual attack rates from enteric fever per 1,000 persons in certain towns during the five years 1893-97.

	Number of cases of Enteric Fever notified in period 1890-97.	Annual Attack Rate per 1,000 from Enteric Fever in period 1890-97.	
TOWNS.	Annual Attack Rates per 1,000 from Enteric Fever during the five years 1893-97.	TOWNS..	Annual Attack Rates per 1,000 from Enteric Fever during the five years 1893-97.
Swinton and Pendlebury	393	2·13	
Aston Manor	·94	London	·77
Barnsley	3·03	Macclesfield	·67
Barrow-in Furness	·81	Merthyr Tydfil	2·21
Bath	·32	Middlesbrough	2·41
Birmingham	1·00	Newport (Mon.)	·98
Bournemouth	·19	Northampton	·41
Bradford	·73	Oxford	·47
Bristol and St. George	·62	Plymouth	·45
Burton-on-Trent	1·07	Salford	1·80
Cambridge	1·15	St. Helens (Lancs.)	2·68
Cardiff	·56	Sheffield	1·54
Carlisle	·42	Smethwick	·77
Colchester	·53	Southampton	·95
Coventry	·65	Southport	·81
Darlington	1·61	South Shields	1·35
Devonport	·64	Stockport	1·37
Dover	·36	Tottenham	1·52
Eastbourne	·69	Tynemouth	·93
Exeter	1·65	Walsall	1·01
Gloucester	·72	Walthamstow	1·59
Grimsby	2·96	West Bromwich	1·42
Hornsey	·60	West Hartlepool	·95
Hull	1·60	Wolverhampton	1·44
*Leeds	1·09	Worcester	·76
Leyton	1·29	Fifty towns	1·03
Liverpool	2·17		

* Leeds from 1895-97 only.

From the figures in Table D it appears that, of the 50 towns included in the table, only six exhibit a higher attack rate from enteric fever than the Swinton and Pendlebury District : and that the mean attack rate from enteric fever in these towns during the five years 1893-97 was 1·03 per thousand living, while that of Swinton and Pendlebury during the eight years 1890-97 was 2·13—more than double the rate of these towns.

GENERAL SANITARY CONDITION.

Dwellings.—For the most part houses in the Swinton and Pendlebury Urban District are inhabited by persons of the working class. They are usually two-storied brick buildings with two rooms on each floor. In the main they are in fair condition : although there would seem to have been in the past a good deal of “jerry” building in the district, with result that not a few houses of apparently good exterior are damp, and also admit rain through defective roofs. Houses of this description, it may be anticipated, will rapidly deteriorate ; and will be fruitful sources of defective sanitary conditions in the near future. There are also houses in the district which are old and dilapidated : and these are usually damp and badly lighted. Of crowding of dwellings upon insufficient area there is but little, although occasional instances of this sort came under my observation.

5, *Bold Street*: an old and dilapidated building. Is very damp : and, according to the tenant, rain comes in through the roof freely.

17, *Melbourn Street*: a two-roomed dwelling. The ground floor room is 12 ft. square and 7 ft. 3 ins. high. Is very damp : and the tenant states that rain comes through the roof.

144, *Bolton Road*: a house with six rooms and a scullery. The gable end wall is damp ; rain comes in through roof into first-floor front room, and also into a back room situated over the scullery. The latter room is so damp as to be uninhabitable, and the tenant does not use it.

24, *Cobden Street*: is damp. According to the tenant rain comes through the roof, notwithstanding that it has been repaired more than once.

12, *Gate Street*: is damp. Tenant states that, in winter time, water can be “ scraped off the wall.”

40 and 42, *Partington Lane*: both houses are old, dilapidated, damp, and badly lighted.

Alice Street and Ellen Street: crowding of houses upon insufficient area. These two streets are parallel to one another : and the back walls of eight houses in the one street are distant only 11 feet from the back walls of eight houses in the other. The narrow space thus provided between the two streets is further diminished by five blocks of privy middens.

House and Court Yards.—The condition of house and court yards leaves much to be desired. In a considerable number of instances, indeed, house and court yards are well paved and clean. But many are paved with cobbles, which allow accumulation of filth between their interstices. As regards not a few, paved with bricks or with stone flags, the paving material has become broken and uneven. Yet other yards are unpaved save for a narrow strip of cobbles or other material skirting the house wall. Some yards are entirely unpaved. The channelling leading to the yard gully is frequently uneven, with the result that slop water tends to stagnate in the channel instead of flowing freely to the yard gully. Many yards are in a very dirty condition owing to vegetable and other objectionable refuse cast on the yard surface : and in not a few instances, also, owing to the keeping of fowls, which are allowed to roam about the yard, which they foul with their droppings.

1-33, *Worsley's Buildings*: a large yard common to the occupants of Nos. 1-33. Is unpaved, save for a strip of brick paving, 3 feet in width, which skirts the houses. This strip is old, dilapidated, and

uneven. Uneven channelling along the centre of the yard, containing stagnant pools of slop-water. Fowls kept. The yard surface is littered with ashes, vegetable refuse, rags, scraps of paper, and fowl droppings.

474-482, *Bolton Road*: a large yard partly paved with cobbles. This paving is very uneven, and allows slop-water to remain on the yard surface. The yard is littered with ashes, other refuse, and fowl droppings.

36-38, *Worsley Street*: the yards of these houses are paved with brick which has become uneven and broken, allowing slop-water to form pools on the yard surface.

1-13, *Bridge Street*: the yard common to these houses is unpaved save for a narrow strip of cobbles skirting the houses. The yard surface has a downward slope away from the houses, and slop-water runs over this surface, which is unpaved for the most part. The yard is littered with ashes, other refuse, and fowl droppings.

50-62, *Station Road*: yard unpaved save for a narrow strip of flagstones. Ashes, bricks, cans, bones, vegetable refuse, scraps of paper littering the surface of the yard ; which is also fouled by fowl droppings.

15, *Arthur Street*: yard unpaved. Tenant states that it becomes very dirty in wet weather.

323-337, *Chorley Road*: the yard is paved, in the vicinity of the houses, with cobbles and bricks in a very dilapidated state. There are pools of slop-water on the yard surface.

59, *Eaton Street*: the yard is paved with flagstones, bricks, and cobbles, but the paving is broken and uneven.

Roadways and Passages.—Most of the streets in Swinton and Pendlebury are paved : the material employed for the greater number being, as regards the roadways, either granite setts or gritstone setts, while the footpaths are generally paved with flagstones. Cobbles, however, still form the paving material in some instances ; while not a few of the streets paved with setts are in bad repair. Other streets are entirely unpaved, and in wet weather some of them become, it is said, unfit for traffic. There are also, in this district, many passages serving as back streets. These are usually about 12 ft. in width, and are for the most part unpaved. They become very dirty in wet weather. As regard cleanliness, the streets leave something to be desired ; dried horse manure, dust, scraps of paper, and the like may at times be observed scattered on their surface and blowing about with every gust of wind. The passages that serve as back streets are not infrequently littered with ashes, vegetable refuse, and other objectionable matters.

Partington Lane : in the greater part of its length the roadway of this street is paved with setts in one half and with cobbles in the other. The paving is uneven in many places. The footways are paved with flagstones in some parts, with cobbles in others ; while in yet other parts there is no paving save the kerbstone. The channelling is commonly rough and uneven. There are accumulations of horse refuse, straw and scraps of paper in the gutters.

Birkdale Road : the roadway is unpaved, very uneven, and deeply channelled by rain-storms.

Back passage between Stafford Road and Pendlebury Road : is about 12 ft. wide, unpaved, surface uneven, channelled by rain-storms, and littered with ashes and other refuse.

Disposal and Removal of Excrement and House-refuse.—The chief method of disposal of excrement and house-refuse is the privy-midden system. There are also some water-closets, with dry ash-pits : but these are few in comparison with the privy-middens. The middens are usually capacious structures, capable of containing the excrement and refuse of three or four dwellings contributed during several months. The older middens are constructed of bricks set in cement with a floor of flagstones or of bricks : the newer middens have cement-concrete floors and a layer of cement lining the interior of their walls. The floor of the midden is below the ground-level, save in those that have been constructed during the last two or three years, and

not infrequently liquid may be observed standing in them. Nearly half the middens in the district are drained into the sewers. Some of them are roofed over, others are uncovered: probably the latter are the more numerous. Into these receptacles are cast ashes, vegetable refuse of all sorts, and not uncommonly animal refuse also. They are usually offensive nuisances. Dry ash-pits, where they exist, are usually structures capable of containing several months' accumulations of house refuse. They are not infrequently without roof: while the floor of some is below the ground level. Middens, as well as ash-pits, are cleansed by contractors employed for this purpose by the Urban District Council. For the most part these receptacles are cleansed once every two or three months: although, in many instances, a longer period than this elapses between successive cleansings. The contents of middens are disposed of to farmers: while dry refuse is taken to a "tip" near the northern boundary of the district and there deposited.

1-7, *Moor Street*: two privy middens. One of these measures 8 ft. by 3 ft.; its floor is 2 ft. below ground level. It is uncovered and smells offensively. It is stated to be cleansed twice a year.

178-184, *Worsley Road*: midden measures 22 ft. by 5 ft.; its floor is 1 ft. below ground level. It is roofed over. Is very offensive. Has not been cleansed, it is said, for a year.

121-123, *Partington Lane*: midden is uncovered, and measures 5 ft. by 5 ft.; its floor is 1½ ft. below ground level. It smells offensively.

Police Station, Arthur Street: covered midden, measuring 3 ft. by 5 ft.; its floor is on the ground level. Is very offensive.

54, *Wellington Road*: covered midden, measuring 3 ft. by 4½ ft., with floor 6 in. below the ground level. Smells very offensively. The tenant of the dwelling states that he uses "disinfectant" with a view to lessening the smell. He also complains that the midden is sometimes allowed to become too full before it is cleansed.

Yard at corner of Grosvenor Street and Little Cross Lane: 11 houses in yard, with common privy midden. The midden measures 30 ft. by 2¾ ft., and its floor is 6 in. below ground level. It has no roof: and liquid stands in its bottom. Is extremely offensive.

7, *Whitley Street*: uncovered and very offensive midden, measuring 6 ft. by 2½ ft., with floor 6 in. below ground level. This midden is within 4 ft. of the back-door and window of the house.

Potter's Square: uncovered, very offensive midden, measuring 12 ft. by 5 ft., with floor 1½ feet below ground level.

48-50, *Stafford Road*: uncovered midden, measuring 5½ ft. by 3½ ft., with floor 9 in. below ground level. Is full; and very offensive. Its liquid contents are leaking through the midden wall on to the surface of the passage on which it abuts.

House-drainage.—House drains are, for the most part, earthenware pipes jointed with clay or with cement. Prior to 1895 cement was seldom used for this purpose. House drains are seldom disconnected from the sewers to which they discharge.

The interiors of dwellings are usually disconnected from the drains serving them; although, in those instances where there is an indoor water-closet, the soil-pipe is seldom ventilated by a full-bore upcast shaft. In the course of my inspection I observed instances of nuisance arising from defective conditions of house-drainage.

3, *Partington Lane*: house-drain blocked; tenant complains of offensive smells proceeding from it.

179-189, *Worsley Road*: complaint made of offensive smells from a yard gully, to which the privy-midden serving No. 189 is said to be drained.

325, Chorley Road: tenant complains that during heavy rains the drain of the yard-gully opposite her door "backs up," and, in consequence, sewage makes its way into her house, through which it flows, by reason of the slope of the floors, from the back-room to the front-room and thence into the street.

Sewerage and Sewage Disposal.—With the exception of two small groups of dwellings, one situated towards the western and the other towards the eastern extremity of the district, all houses in those parts of Swinton and Pendlebury that are not of a rural character, drain to sewers. For the most part the sewers are earthenware pipes, jointed in some instances with clay, in other instances with cement. There is no provision for ventilation of sewers otherwise than by perforated manhole covers. Many manhole covers, however, are not perforated; while the holes in those that are perforated are usually blocked by refuse from the street surface. The flushing of sewers is effected by the introduction of a stream of water from a 4-inch hose pipe by way of a manhole; the water being retained at the point of introduction by means of a lowered penstock until sufficient head has been attained, whereupon the penstock is raised and the accumulated water flushes the length of sewer below. There are two systems of sewers in this district; of which one serves a population of about 7,000, and conveys the sewage to the Pendlebury sewage works, while the other serves a population of about 18,000, and conveys the sewage to the Swinton works. The two systems are not connected with one another; and the Swinton Sewage Outfall Works are on the south side of the district, while the Pendlebury Sewage Outfall Works are on the north side.

The Pendlebury Sewage Outfall Works deal with an estimated dry-weather flow of 150,000 gallons. They comprise 16 acres of land, of which $1\frac{3}{4}$ acres belong to the Urban District Council, while other $14\frac{1}{4}$ acres are rented for the purposes of these works. All sewage brought to these works goes through the following stages of treatment:—

- (1.) Straining off the grosser solids;
- (2.) Treatment by the alumino-ferric process;
- (3.) Either (a) treatment by polarite filter beds, or (b) treatment by being passed through "cinder and earth" beds.

These latter consist of two beds of boiler-cinders one foot in depth, beneath which are 3 ft. 6 in. of soil. The beds cover a total area of $\frac{2}{3}$ acre, and are under-drained. The polarite filter-beds are four in number, with a total area of 150 square yards. The effluent from these works is discharged into the river Irwell.

The Swinton Sewage Outfall Works comprise thirty-seven acres of land, of which thirty-two are the property of the Urban District Council, while the additional five acres are rented. The daily dry-weather flow of sewage to these works is estimated at 500,000 gals. This sewage is dealt with as follows:—

- (1.) Straining off the grosser solids;
- (2.) Treatment with lime and copperas;
- (3.) Either (a) treatment by intermittent downward filtration through land; or (b) treatment by means of coke beds; or (c) treatment by means of cinder-beds; or (d) treatment by means of "cinder and earth" beds.

As regards (a) it may be noted that only $10\frac{1}{2}$ acres of land regarded as suitable for sewage disposal, are at a sufficiently low level to permit sewage being passed over them. These $10\frac{1}{2}$ acres are under-drained at a depth of 3 ft. to $3\frac{1}{2}$ ft.; the soil is clay. As regards (b), these beds are four in number with a total area of 500 sq. yds., and consist of a layer of broken coke, 4 ft. in depth. As regards (c), these beds are two in number, with a surface area of 1,320 sq. yds. each, and consist of a layer of cinders, 3 ft. 6 in. in depth. As regards (d), these beds are four in number, with a total area of $1\frac{3}{4}$ acres, and consist of a layer of cinders on top, about 1 ft. in depth, beneath which come nearly 3 ft. of soil. The coke-beds, the cinder-beds, and the "cinder and

earth" beds are all under-drained. The effluent from the Swinton Sewage-Outfall Works is discharged into a neighbouring stream, known as the Folly Brook, and not obviously liable to other pollution. I examined samples of the effluent flowing from the cinder-beds, as also from the "cinder and earth" beds. They were opalescent and had very little smell. At the point where the effluent from these beds discharged into the brook, the bed of the stream was tolerably clean and patches of green weed were noticeable here and there. On following the downward course of the stream, however, increasing evidences of pollution appeared : the green weed disappeared and deposits of black mud became more and more noticeable in the bed and on the banks of the brook. About a quarter of a mile below the highest point at which the sewage-effluent passes into the brook, its waters were in a foul condition.

Water Supply.—The water supplying the whole district is obtained from the mains of the Manchester Corporation, and is derived from Thirlmere. Only one house in the district is known to be supplied from a local well.

Slaughterhouses: Dairies and Cowsheds: Bakehouses.—There are 21 slaughterhouses, 29 cowsheds, and 10 milkshops in the district. The slaughterhouses seen by me were, for the most part, fairly good as regards their structural conditions : in the matter of cleanliness, however, some of them left a good deal to be desired. The structural conditions of the cowsheds that came under my notice fell short of what is desirable in several respects. Defective paving of their floors and inadequate means of ventilation were the shortcomings mainly noted by me. The bakehouses inspected by me were satisfactory as regards construction and cleanliness.

SANITARY ADMINISTRATION.

Swinton and Pendlebury is an Urban District, with a Council of twelve members, meeting once a month.

Adoptive Acts, Bye-laws and Regulations in force in the District.--The Public Health Acts Amendment Act has been in force in the district since January 8th, 1891 ; and the Infectious Disease (Notification) Act, 1889, has been in force in the district since December 3, 1889. The following list shows the matters concerning which bye-laws have been made, and also the dates on which these several sets of bye-laws were allowed :—

- Prevention of Nuisances and Removal of Refuse : January 11th, 1869.
- Regulation of Slaughterhouses : January 11th, 1869.
- Regulation of Common Lodging-houses : January 11th, 1869.
- Regulation of Markets : May 26th, 1877.
- Keeping of Animals : May 13th, 1885.
- New Streets and Buildings : December 5th, 1894.
- Paving of Yards : December 10th, 1897.

Regulations regarding Dairies, Cowsheds, and Milkshops have been in force in the district since May 26th, 1887.

The three series of bye-laws approved in 1869 are, in some respects, not in accordance with modern requirements. As regards common lodging-houses, however, it should be noted that there are no longer any of these in the district. The bye-laws for New Streets and Buildings follow, in a general way, the Board's Model Series on this subject, but with an important difference as regards privies and ash-pits, the maximum cubic capacity of these receptacles being put at 20 cubic feet instead of 8 cubic feet, as almost invariably recommended by the Board. The bye-laws concerning paving of yards and open spaces in connection with dwelling-houses are under Section 23 of the Public Health Acts Amendment Act, 1890. Owing to the recent date of their approval, the powers obtained under these bye-laws have not as yet been much utilised.

No action has been taken by the Urban District Council under the Housing of the Working Classes Act, 1890.

Scavenging.—The cleansing of "earth-closets, pails, privies, ash-pits, and cesspools" within the district is undertaken by the Urban District Council, who employ two contractors to carry out this business. Each of these two contractors

has an area allotted to him for this purpose : one contractor receiving £410 per year, the other £470 per year for the work. Each contractor is bound to cleanse the receptacles above specified within three days of notice to do so given him by the Inspector of Nuisances, and within twenty-four hours when there is infectious disease in the dwelling. The usual method of cleansing ash-pits and middens is to shovel out their contents on to the surface of a back passage, whence they are transferred to night-soil carts and removed. When there is no back passage the midden contents are conveyed in wheelbarrows to the street, on the surface of which they are deposited to await removal. The contractor undertakes to "disinfect all earth closets, pails, privies, ash-pits, and cesspools at the time of being emptied," and to "sprinkle disinfectants along any court, passage, or street in which the night soil may have been deposited for the purpose of removal," the Urban District Council supplying him with disinfectants. These receptacles are to be cleansed during the day time from September to May inclusive, and during the night time in June, July, and August.

Hospital Accommodation for cases of Infectious Disease: and Disinfection of Infected Articles.—There is no hospital for infectious diseases within the district. Cases of small-pox from Swinton and Pendlebury are admitted by the Manchester City Council to their hospital at Monsall ; payment for this accommodation being made to the latter body by the Urban District Council under agreement. The agreement expires on June 24, 1899. Cases of infectious disease, other than small-pox, notifiable under the Infectious Disease (Notification) Act, 1889, are admitted to the Salford Town Council's hospital at Ladywell ; the Urban District Council paying the Salford Town Council for this accommodation, according to a scale fixed by agreement. This agreement has been made for a period of ten years dating from May of the present year. Prior to that time cases of fever not treated at their homes were for the most part sent to Monsall Hospital. The Urban District Council have no disinfecting apparatus. The means of disinfection resorted to are fumigation of infected rooms and articles with sulphur ; with subsequent washing of these, where this measure is applicable. In some cases, infected articles are disinfected by the Salford Town Council at a fixed scale of charges. Articles infected by small-pox are destroyed.

Sanitary Staff.—The sanitary staff for the district consists of a Medical Officer of Health, who is engaged in private practice : and of an Inspector of Nuisances, who is also Inspector of Markets. The Inspector of Nuisances receives occasional assistance in the disinfection of houses invaded by infectious disease. This assistance is afforded by a man who is ordinarily employed on the district roads : he receives no special emoluments for help rendered to the Inspector of Nuisances.

The Medical Officer of Health is Samuel Hosegood, M.R.C.S., L.S.A., who receives a salary of £90 per year, half repaid from county funds. The Inspector of Nuisances, is Albert Bleakley, who receives £110 per year, half repaid from county funds. He also receives £10 per year as Inspector of Markets. In addition to the ordinary duties of Inspector of Nuisances, he has to see that the undertakings of the contractors to cleanse ash-pits, privies, &c., are properly performed. He also keeps the Health Office books. He is a careful and painstaking officer : but the duties devolving upon him cannot adequately be discharged by a single Inspector of Nuisances, provided with but trifling assistance, in a district of the size and character of Swinton and Pendlebury.

Nuisances.—Nuisances abound in the district. Mainly these arise in connection with the offensive privy-middens that form the chief method of excrement-disposal in the district. But unpaved and defectively paved yards and passages, accumulations of refuse in yards, defective sink-pipes and rain-fall pipes causing dampness of house walls, defective drains, and other unsanitary conditions are also fruitful sources of nuisance. The annexed returns made by the Inspector of Nuisances in regard of the two years 1896 and 1897 afford some indication of the condition of the district as regards nuisances.

Summary of Sanitary Work attended to during the year 1896 :—

NUISANCES AND REPAIRS, &c., NECESSARY TO PROPERTY.

Defective soil pipes and water-closet arrangements ...	...	11
Dilapidated state of closet and ashpit walls and wet ashpits ...	...	44
Defective sinkstone pipes, and paving around gullies and the pipes being directly connected with the drains ...	...	17
Blocked gullies and drains, and defective condition of same ...	...	58
Defective structural condition of houses--chimney flues, spouting, roofings and ceilings, cellar floors ...	...	15
Allowing waste water to lodge on surface of yards, streets, and passages ...	...	21
Dirty state of houses, premises, and yards ...	...	10
Accumulation of, and deposit of, refuse, vegetables, and decayed fish, &c., in prohibited places ...	...	28
Overcrowding ...	...	5
Defective state of urinals and manure receptacles ...	...	12
Unsound food offered for sale (onions) ...	...	1
Inefficient emptying of ashpits and clearing afterwards ...	...	15
Firing of house chimneys ...	...	23
Keeping poultry in house (ducks) ...	...	1
Keeping pigs in contravention of bye-laws ...	...	4

Summary of Sanitary Work attended to during the year 1897 :—

NUISANCES AND REPAIRS, &c., NECESSARY TO PROPERTY.

Closets and ashpit walls requiring repairs ...	...	...	95
Wet ashpits, "owing chiefly to blocked drains and tenants throwing waste water into covered ashpits" ...	...	...	88
Depositing ashpit refuse in prohibited places ...	...	...	11
Ashpits without doors ...	...	...	63
Broken and short slopstone pipes, "allowing waste water to drip down housewall" ...	...	...	407
Defective pavement around gullies in yards, "allowing waste water to lodge" ...	...	...	366
Untrapped drains. "Slopstone pipes directly connected with drains and untrapped grids in yards" ...	...	...	47
Blocked gullies. "Chiefly tenants' fault for not clearing same" ...	...	...	29
Defective drains and broken gullies ...	...	...	42
Dirty houses and accumulation of rubbish, &c., in yards ...	...	...	14
Defective structural condition of houses : "Walls, roofs, and spouting" ...	...	...	32
Inefficient draining of yards and passages ...	...	...	6
Firing of house chimneys ...	...	...	8
Defective manure receptacles ...	...	...	5
Overcrowding ...	...	...	2

It will be observed that the nuisances "attended to" in 1897 far outnumber those attended to in 1896. This is, in part at least, to be attributed to an investigation made by a Committee of the Urban District Council appointed to conduct a "street-to-street visitation" of Swinton and Pendlebury.

In searching for an explanation of the persistence of enteric fever in Swinton and Pendlebury, no evidence was forthcoming which would justify its being referred either to the water supply or to the sewerage of the district. For the water supply, as stated, is derived from the Manchester mains, and is supplied to Manchester and to other districts which are not marked by a like persistence of fever. The sewerage of the Swinton and Pendlebury district comprises two entirely separate systems; and there was

no evidence of heavier incidence of the fever on dwellings on one system as compared with dwellings on the other.

But although broad contrasts of this kind did not appear, there were indications that some parts of the district had suffered more from enteric fever than others. The data available in this regard are, unfortunately, of very limited amount, extending as they do over a period of three years only ; and a corresponding limitation therefore attaches to their value as bases of induction. They may, however, probably be taken as affording some ground for suggestion as to the conditions mainly responsible for the fever. These data are set out in the following table (Table E.), in which are given the death rates and attack rates from enteric fever per 1,000 living in each of the four wards which constitute the Swinton and Pendlebury Urban District. As matter of interest, death rates from all causes, as well as from certain other causes, in these wards are also given.

TABLE E.

SHOWING for each of the Four Wards of the Swinton and Pendlebury Urban District the mean Annual Death Rates per 1,000 living from all causes, as well as from certain particular causes, during the Three Years 1895-97; and also the mean Annual Enteric Fever Attack Rates per 1,000 living in each Ward during the same period.

Ward.	Area in Acres.	Estimated Population.	Mean Annual Death Rate per 1,000 living from				Mean Annual Attack Rate per 1,000 living from Enteric Fever.
			All Causes.	Seven Principal Zymotics.	Diarrhoea.	Enteric Fever.	
North	265	6,960	17·2	3·6	1·4	0·57	2·4
South	975	7,350	12·3	1·8	0·41	0·13	1·2
West	236	6,620	20·2	3·9	1·1	0·60	3·3
East	746	4,230	20·1	1·9	0·07	0·47	3·1

The most striking feature in the above table is the comparatively small incidence of enteric fever, both as regards attacks and deaths, upon the South Ward. This ward, which has also the lowest death-rate from all causes, contains a materially smaller proportion of dwellings of the poorer classes than any of the other three wards. Pendlebury West, much of Pendlebury North, and the populous part of Pendlebury East, on the other hand, mainly comprise dwellings inhabited by the working classes and by the poorest classes : and it will be observed that these three wards have suffered heavily from enteric fever.

So far as these figures afford guidance they tend to suggest that the fever has been associated with neighbourhoods inhabited by the working and the poorer classes ; and to this extent they suggest also association of the disease with the filthy conditions too often found in connection with the surroundings of this class of dwelling in town districts. That these filthy conditions do abound in Swinton and Pendlebury appears with sufficient clearness from the account that has been given of the general sanitary circumstances of the district. These conditions comprise: Unpaved and badly paved yards, allowing refuse, both liquid and solid, to pollute the ground ; defective house and yard drains, bringing about a like result ; and, above all, large privy middens containing the accumulated excreta of months, much of the more liquid part of which soaks into and fouls the neighbouring soil. In addition to the fouling of the soil thus brought about by these middens, pollution of the ground-surface takes place each time that they are cleansed, by reason of their contents being cast upon passages and streets and left there pending removal of these matters by the night-soil cart. In these various ways the soil on which much of Swinton and Pendlebury stands is liable to serious

fouling ; and in view of the suitability of soils thus befouled as a medium for the growth and multiplication of the bacillus of enteric fever, it may well be, that here is to be found an explanation of the persistence of that fever in the district.

But, however this may be, the old privy middens that abound in the more populous parts of Swinton and Pendlebury are fertile sources of offensive nuisance ; and for this reason the Urban District Council should take steps to procure their abolition and to substitute in their stead a proper system of excrement and refuse disposal.

There are other matters that also require the attention of the Council. Prominent among these is the proper paving of house-yards and streets. As regards paving of house-yards the Council have recently acquired bye-law powers, as already noted, of which they have been making some use and will, it is to be trusted, make further use. As regards paving of streets the Council have endeavoured to obtain the Board's sanction of a loan for this purpose ; but sanction was refused on the ground that some of the works proposed would involve the construction of sewers that would convey sewage to outfall works not in a condition to receive a further volume of sewage. The present methods of disposal of sewage, whether at the Swinton outfall works or at the Pendlebury outfall works, are unsatisfactory ; and this question should have the Council's immediate and careful attention, as also should the need for efficient ventilation of the sewers throughout the district. Dwellings and house drainage also require constant and careful supervision ; and regular visitation of all parts of the district is necessary for the detection and remedy of nuisances. For this purpose the Council should add to their sanitary staff, which is at present inadequate to the proper supervision and control of the sanitary circumstances of the district.

The Council should also make new bye-laws in place of such of those now in force in the district as are no longer in accordance with modern requirements.

I have to thank Mr. Berry, the Clerk to the Urban District Council, for much statistical and other information ; Mr. Entwistle, the District Surveyor, for information connected with his department ; Dr. Hosegood, the Medical Officer of Health, for statistics concerning the Pendlebury Children's Hospital ; and Mr. Albert Bleakley, the Inspector of Nuisances, for sustained assistance throughout the whole of my Inquiry. My thanks are also due to Dr. Niven, the Medical Officer of Health of Manchester ; to Mr. Townson, Clerk to the Salford Guardians ; and to Mr. Whitworth, Clerk to the Barton-upon-Irwell Guardians ; for statistical information supplied to me.

THEODORE THOMSON..

September 16th, 1898.